WHAT IS CLAIMED IS:

1. An optical housing comprising:

a substrate having a reflective side and an absorptive side;

a generally planar base portion of said substrate; and

a protruding cover portion of said substrate, said cover portion defining a pocket on said absorptive side;

said substrate having an open position with said base portion distal said cover portion and a closed position with said base portion proximate said cover portion, said substrate configured to enclosed a detector within said pocket in said closed position;

wherein said base portion defines an aperture generally centered within said base portion and aligned with said detector in said closed position so as to pass light through to said detector.

2. The optical housing according to claim 1 further comprising a generally planar flange portion of said substrate disposed around the periphery of said cover portion.

3. The optical housing according to claim 2 wherein said base portion further defines a slot partially extending across said base portion proximate said flange portion, said substrate being foldable along said slot so as to move said substrate from said open position to said closed position.

4. The optical housing according to claim 3 wherein said substrate further comprises:

a first width across said base portion;

a second width across said flange portion, wherein said first width is narrower than said second width so as to seal the edges of said substrate in said folded position; and

a plurality of indents generally aligned with said slot defining a transition from said first width to said second width.

5. The optical housing according to claim 4 wherein said substrate has a length that is less than about 1.1 inches and said second width is less than about .4 inches.

6. The optical housing according to claim 1 wherein said substrate comprises a laminate having a generally white layer corresponding to said reflective side and a generally black layer corresponding to said absorptive side.

7. The optical housing according to claim 1 further comprising a raised aperture portion of said substrate that extends from the plane of said base portion so as to provide spacing between said detector and a tissue site.

8. An optical housing method comprising the steps of:

providing a substrate having an absorptive side and a reflective side;

forming a cover portion of said substrate so as to create a pocket on said absorptive side;

punching said substrate so as to separate a housing from said substrate;

securing a detector within said pocket; and

enclosing said detector with said housing.

9. The optical housing method according to claim 8 wherein said providing step comprises the substep of laminating a white layer and a black layer.

10. The optical housing method according to claim 8 wherein said forming step comprises the substeps of:

creating a ramp sloping from a flange disposed around the periphery of said cover to a raised platform; and

beveling sides that slope from said flange to said platform.

11. The optical housing method according to claim 8 wherein said punching step comprises the substep of shaping a base adapted to fold over said pocket.

12. The optical housing method according to claim 11 wherein said punching step comprises the further substep of shaping a flange around the periphery of said base, said flange having indents that taper from a wider flange width to a narrower base width.

13. The optical housing method according to claim 12 wherein said punching step comprises the further substep of defining an aperture generally centered within said base.

14. The optical housing method according to claim 13 wherein said punching step comprises the further substep of defining a slot partially extending across said base width proximate said flange.

15. The optical housing method according to claim 8 wherein said securing step comprises the substep of adhering a detector assembly incorporating said detector to an inside surface of said housing that defines said pocket.

16. The optical housing method according to claim 11 wherein said enclosing step comprises the substep of folding said base from an open position distal said flange to a closed position proximate said flange.

17. An optical housing comprising:

a light reflecting cover means for shielding against ambient light;

a base means for blocking piped light, said base means adjoining said cover means;

a light absorbing pocket means for securing a detector, said pocket means defined by said cover means and said base means; and

an aperture means for allowing light transmitted through a tissue site to be received by said detector, said aperture means defined by said base means.

18. The optical housing according to claim 17 further comprising a slot means for moving said base means between an open position configured for placing said detector in said pocket means and a closed position configured for enclosing said detector within said pocket means.

19. The optical housing according to claim 17 further comprising a laminate means for forming said cover means and said base means from a single substrate, said laminate means having a reflective side corresponding to said cover means and an absorptive side corresponding to said pocket means.

20. The optical housing according to claim 17 further comprising a flange means disposed around said cover means adapted to attach said housing to a tape stock layer of a disposable sensor.

21. A sensor circuit comprising:

a circuit substrate;

a pair of pads disposed on an optical portion of said circuit substrate;

a plurality of pinouts disposed on a connector portion of said circuit substrate; and

a plurality of conductive paths providing electrical communication between said pads and said pinouts,

said pads configured to mechanically mount a corresponding pair of optical components to said circuit substrate and to electrically connect said components to said conductive paths,

at least one of said pads adapted to mount one of said components at either a first spacing or a second spacing from the other one of said components,

said second spacing being greater than said first spacing by a predetermined amount.

22. The sensor circuit according to claim 21 wherein said at least one of said pads comprises a plurality of extended contacts providing a first attachment position corresponding to said first spacing and a second attachment position corresponding to said second spacing.

23. The sensor circuit according to claim 21 wherein said at least one of said pads comprises a first contact set of contacts corresponding to said first spacing and a second contact set corresponding to said second spacing, said first contact set and said second contact set being electrically connected in parallel.

24. The sensor circuit according to claim 21 further comprising an elongated aperture defined by said substrate and adapted to transmit light through said substrate for said one of said components mounted at either said first spacing or said second spacing.

25. The sensor circuit according to claim 21 wherein said first spacing is about 20 mm and said second spacing is about 25 mm.

26. The sensor circuit according to claim 21 wherein said first spacing is about 1.0 inch and said second spacing is about 1.1 inch.

27. A sensor circuit comprising:

a flexible circuit substrate;

a first pad disposed on said substrate and configured to mount a detector; and

a second pad disposed on said substrate and configured to mount an emitter,

at least one of said first pad and said second pad adapted so that a detector-emitter spacing is a first distance or a second distance depending on the placement of at least one of said detector and said emitter,

said first distance and said second distance predetermined so as to accommodate particular sensor types.

28. The sensor circuit according to claim 27 wherein:

said second pad comprises a first contact set and a second contact set,

said emitter mountable to said first contact set said first distance from said detector mounted to said first pad, and

said emitter mountable to said second contact set said second distance from said detector mounted to said first pad.

29. The sensor circuit according to claim 27 wherein:

said second pad comprises a plurality of extended contacts,

said emitter mountable to said contacts in a first position located a first distance from said detector mounted to said first pad, and

said emitter mountable to said contacts in a second position located a second distance from said detector mounted to said first pad.

30. The sensor circuit according to claim 29 further comprising an elongated aperture configured so that light is transmitted from said emitter through said aperture when said emitter is mounted in either said first position or said second position.

31. The sensor circuit according to claim 27 wherein said sensor types comprise a neonate sensor and an infant sensor, said first distance and said second distance in the range of about 20 mm to about 25 mm.

32. The sensor circuit according to claim 27 wherein said sensor types comprise a pediatric sensor and an adult sensor, said first distance and said second distance in the range of about 1.0 in. to about 1.1 in.

33. A sensor circuit method comprising the steps of:

predetermining a plurality of optical component spacings based upon a corresponding plurality of sensor types, said sensor types indicative of tissue site location and patient size;

configuring a pad to fixedly mount and electrically connect an optical component to a flexible circuit at a plurality of positions, said positions corresponding to said spacings; and

mounting said optical component to a particular one of said positions to construct a particular one of said sensor types.

34. The sensor circuit method according to claim 33 comprising the further step of adapting at least one aperture defined by said flexible circuit so as to pass light for said optical component mounted at any of said positions.

35. The sensor circuit method according to claim 33 wherein said configuring step comprises the substep of constructing a plurality of contact sets electrically connected in parallel, each of said sets providing a corresponding one of said positions.

36. The sensor circuit method according to claim 33 wherein said configuring step comprises the substep of providing a plurality of contacts extending from said optical component so that said optical component is mountable to said contacts in each of said positions.

37. A sensor comprising:

a circuit substrate means for mounting and electrically connecting components;

a pad means disposed on said substrate for fixedly mounting an emitter at either a first spacing or at a second spacing from a detector; and

a tape stock means for attaching said emitter and said detector to a tissue site.

38. The sensor according to claim 37 further comprising an aperture means for passing light from said emitter through said circuit substrate with said emitter mounted at either said first spacing or said second spacing.

39. The sensor according to claim 38 further comprising a tape means disposed over said pad means so as to improve bend cycles and ESD resistance.